

ABSTRACT

[The steering apparatus comprises a] A helm pump (10) [that can be] rotated either in forward or reverse direction by operating a steering wheel (13) and discharges a liquid of a quantity proportional to the rotating angle, and [the] a double action cylinder [means that] moves a rudder (27) and is provided on rudder (27) side of the ship, [with the] helm pump (10) and the double action cylinder [means] being connected with the hydraulic circuit of fully closed construction, [so as] to move the rudder (27) by an amount corresponding to the amount of liquid discharged from the helm pump (10).[, wherein] A second pump [means that] generates discharging pressure in the same direction as the discharging direction from [the] helm pump (10) against [the] resistive pressure generated by the rotation of [the] helm pump (10) due to the operation of [the] steering wheel (13) is installed in series in part of the fully closed hydraulic circuit, so [that] the steering resistance of [the] steering wheel (13) is automatically reduced by [means of the assistance of said pump means] the action of the second pump.